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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

**APPLICANT:** Farrington et al.

**SERIAL NO:** 07/815,783      **GROUP ART UNIT:** 1109

**FILED:** 01/02/92      **EXAMINER:** S. Chaudhry

**INVENTION:** TUMBLING METHOD OF WASHING FABRIC IN A HORIZONTAL  
AXIS WASHER

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Hon. Commissioner of Patents and Trademarks  
Washington, D.C. 20231

RESPONSE TO SECOND OFFICE ACTION

Sir:

This argument is submitted in response to the Examiner's Final Office Action dated October 7, 1992, and to comments made by the Examiner and the Supervisory Primary Examiner during an Interview conducted December 10, 1992. All of the claims in the present application stand finally rejected in the above-referenced application as being obvious under 35 USC § 103 over Johnston in view of Brenner. The Examiner is respectfully requested to withdraw this rejection in view of the arguments presented below.

SUMMARY OF INTERVIEW

An interview on the above referenced patent application was conducted at the US Patent and Trademark Office on December 10, 1992, as summarized in the Examiner Interview Summary Record, paper number 7. Participants were Examiners Theodore Morris and Saeed Chaudhry and Applicant's Attorney Steve Krefman, as well as Patent Engineer Joel Van Winkle, employed by Applicant's Attorney. No new claim limitations were proposed during the interview. Applicant's Attorney pointed out the areas of novelty in the claims, the specific distinctions between the prior art of record and the claims, and the water savings advantage of the present invention. While no agreement was reached on any of the claims, the Examiners agreed to reconsider the rejections upon receipt of a written response presenting the same information and arguments. The following argument includes the arguments presented during the interview. Applicant's Attorney is appreciative of the time and courtesy of the Examiners.

REMARKS

1. The Claimed Invention:

The present invention is directed to a novel, water saving method of washing clothes using a horizontal axis washer wherein a concentrated detergent wash solution is sprayed onto tumbling clothes, this solution is then diluted, and then the diluted solution is sprayed on tumbling clothes.

In the present invention, there are two distinct spraying steps, which provide two different types of action to the clothes:

- (1) A concentrated spray and tumble step, during which a concentrated detergent solution is sprayed on clothes which are tumbled about a horizontal axis in a drum.
- (2) A diluted spray tumble step, during which a diluted solution is sprayed on clothes which are tumbled in a horizontal drum.

In rejecting these claims, the Examiner has cited two references, Johnston and Brenner, which also teach multiple step wash processes involving a first concentrated detergent step and a subsequent diluted wash liquor step. However, these references teach wash processes which are radically different from each other and from the present invention from the standpoint of the cleaning action experienced by the clothes.

All clothes washing methods use a combination of heat energy, through heated water, chemical energy, through the action of the detergent, and kinetic energy, through motion imparted to the clothes and or the wash liquor. The present invention attempts to optimize the mechanical effect of a small amount wash liquor without imparting damaging mechanical action between the clothes.

2. The Johnston Reference Does Not Obviate the Claims:

Johnston teaches a wash process for a horizontal axis washer involving a first step of tumbling clothes through a pool of concentrated detergent solution, or more exactly, dropping them into the pool of concentrated detergent solution. Subsequently, the solution is diluted and the clothes are tumbled through a more diluted wash liquor.

Johnston nowhere suggests the spraying of the concentrated detergent solution into clothes, in either the concentrated wash or the dilute wash step, which would permit the use of less water, let alone spraying recirculated solution in both spraying steps, as claimed in all of the claims of the present invention. Johnston suggests neither of the spray tumbling steps of the present invention.

Johnston, at least when viewed alone, cannot therefore obviate any of the claims of the present application.

3. The Brenner Reference Does Not Obviate the Claims:

Brenner teaches a wash method using a vertical axis washer having an agitator reciprocably mounted in a rotatable basket. In Brenner, the basket full of clothes is spun at high speed such as to maintain the clothes on the peripheral wall of the basket, while concentrated wash liquor is sprayed at and through the clothes. During the spraying step no mechanical energy is imparted to the clothes to cause the clothes to move relative to each other or to move through water, but instead, the step relies upon the centripetal force of the wash liquor moving through the clothes.

In a second step, the basket is no longer spun and the wash liquor is diluted. The clothes are agitated in a pool of diluted wash liquor, and no additional spraying occurs.

Brenner nowhere teaches or suggests that the process taught therein is applicable to a horizontal wash process, which, as is well known in the art, relies on different technologies, imparts different washing action to the clothes, and often requires significantly different amount of water and different compositions of detergent. It is respectfully submitted that application of Brenner's design to a horizontal wash process is improper retrospective reconstruction of the disclosure, based on the perspective gained only after having the benefit of reading the present application. Even before the issue of unexpected results is raised, it must first be concluded that one of ordinary skill in the art would find it obvious to apply the teachings of the first art to the second.

However, even if, as the Examiner suggests, the process of Brenner were to be applied directly to a horizontal washer, it would result in a wash process significantly different from that of the present invention. A horizontal Brenner washer would involve a first step of high speed, non-tumble spinning and spraying, in contrast to the lower speed tumble spraying of the present invention. Brenner does not suggest such a lower speed tumble because it specifically teaches away from applying such mechanical action to the clothes.

A horizontal Brenner washer would have a second step of agitating, (i.e.: probably tumbling), the clothes through a pool of wash liquor without any spraying, which would make the second step similar to the second step in Johnston, except that the clothes would be submerged.

Thus Brenner nowhere teaches or suggests spraying concentrated wash into tumbling clothes, as required by each of the claims pending in the present invention. Brenner nowhere teaches or suggests spraying diluted wash liquor into tumbling clothes, as is also required by each of the claims. Brenner suggests neither of the spray tumbling steps of the present invention. Furthermore, Brenner nowhere suggests saving water during this step. In fact, the clothes in Brenner would remain completely submerged in the wash liquor during the dilute washing step, since the basket would be filled "as is done in a normal wash cycle" (col. 6, line 58 et seq.).

Brenner, at least when viewed alone, cannot therefore obviate any of the claims of the present application.

4. It is Improper to Combine the References:

It is respectfully submitted that these references are directed to two different types of processes, a horizontal wash process and a vertical wash process, which one of ordinary skill in the art would not find obvious to combine. While

spinning at high speed (i: in excess of 1g) may provide a result which is independent of the direction of gravity, low speed agitation is significantly different in a horizontal washer from a vertical washer. The clothes experience a different kind of action, and therefore there are different wash liquor requirements, preventing direct application of a process designed for one system to be automatically applied to the other without experimentation. The well known distinctions between the horizontal wash process and the vertical wash process is best illustrated by the fact the many attempts, as demonstrated in the patent art, have been made to obtain the advantages of both horizontal and vertical axis machines through the use of a tilted axis.

At best, a disclosure of a wash process at one axis may provide a suggestion to one of ordinary skill in the art to try something at another axis, but would almost certainly require further experimentation and probably further invention to result in a practical system. Ultimately, the design of the wash process itself may be more of an art than a science.

5. The Combined References do not Obviate the Claims:

For the reasons stated above, neither of the references suggests either of these spraying steps, let alone the combination of these steps. Therefore, even when combined, they suggest neither of these steps.

Even if the distinctions between a horizontal and vertical axis wash process are overcome, these references teach such a radically different first steps from each other that one of ordinary skill in the art would not have found it obvious to combine them in any way, let alone in the manner suggested by the Examiner. Instead of tumbling clothes through and into a pool of concentrated detergent wash liquor, as taught by Johnston, Brenner teaches, spinning clothes while spraying the concentrated wash liquor at and through the clothes, thus differing from each other in:

- (1) the type of mechanical action experienced by the clothes,
- (2) the manner in which wash liquor is applied to the clothes,
- (3) the axis of rotation of the clothes, and
- (4) the amount of water used in the step.

In fact, Brenner explicitly teaches against the first step in the Johnston method. Brenner teaches against the presence of a pool of water (see second sentence of Abstract, for example) and tumbling of clothes during the first washing step

(see col 5 line 66 et seq., for example), since the goal in Brenner is to pass a large amount of fluid through unagitated clothes, rather than agitate clothes in a fluid.

Therefore one of ordinary skill in the art, having before him or her these references would not know where to begin to combine them, since there is no teaching in either as to the manner in which they should or could be combined. Only after experimentation, could a useful wash process be determined. For example, should the axis be horizontal or vertical? Should the concentrated wash step involve tumble or spin? Should the concentrated wash be sprayed or pooled?

Assuming all of these questions would be answered, the resulting process derived from these two references would still differ from that claimed, since neither of the references suggest the second step. Even when combined in any manner, these references teach away from the dilute tumble spray step provided in all of the claims of the present invention, since these references provide a choice only between agitating the clothes submerged in wash liquor or tumbling the clothes through and dropping them into a pool of wash liquor.

In view of the foregoing remarks and amendments, Applicants respectfully submit that all of the claims remaining in the application are now in allowable form and that the application is now in condition for allowance. Applicants

request the Examiner to indicate all claims as allowable and to pass the application to issue. In view of the finality of the outstanding Office Action, and the fees required to respond to an advisory action, a duplicate copy of this response is being hand delivered to the Examiner. The Examiner is requested to contact Applicant's Attorney promptly to initiate a telephonic interview if the present application is not deemed allowable.

Respectfully submitted,

  
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